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## RECORD OF GEOGRAPHICAL PROGRESS.

### AMERICA.

RAIDS OF THE ONAS ON FLOCKS IN TIERRA DEL FUEGO.—Dr. H. Polakowsky writes in the *Verhandlungen* of the Berlin Geographical Society (No. 7, 1898), that the remnant of the aboriginal Onas living in the Chilian portion of Tierra del Fuego are about to be removed to the Dawson Island because they have killed several Chilians and, driven by hunger, have made war upon the sheep herded there which they call "White Guanacos." The Guanacos which were formerly in great numbers in Tierra del Fuego were the mainstay of the natives for both food and clothing.

HIGHEST KNOWN POINT OF THE WESTERN WORLD.—Mr. E. A. FitzGerald in his paper read before the Royal Geographical Society (*Geog. Jour.*, Vol. XII, No. 5) says that the summit of Mount Aconcagua, a little east of the boundary between Argentina and Chile, and which, as far as is known, is the culminating point of the Americas, is a square plateau 75 paces each way, sloping at an angle of  $7^{\circ}$  towards the north. When his party visited it last year the summit was entirely free from snow. The western and north-western sides of the mountain fall away at an angle of  $20^{\circ}$  and present long slopes of loose stones which are kept clear of snow in summer by the winds that sweep them. On the south and south-west the sides are more precipitous and also fairly clear of snow and ice; but on the southeast there is an enormous precipice of nearly 10,000 feet covered with great overhanging masses of snow and ice, forming a very imposing spectacle.

To the northwest the line of the Pacific was in view stretching away for over 150 miles. Range after range of mountains could be seen between Aconcagua and the ocean. Nothing could be seen of the pampas of Argentina, too many ranges of high mountains intervening. To the south there was a fine view of Tupungato, fifty miles away and about 22,000 feet high. At the time Mr. FitzGerald read his paper the calculations as to the height of the mountain, based on the data collected by Mr. Lightbody, had not been made. Its height had been previously estimated at from 22,421 to 25,000 feet.

Prof. Bonney, basing his remarks upon the geological collections

brought home by the party, said that while both Aconcagua and Tupungato are volcanic, the craters have wholly disappeared. From Aconcagua itself no scoriaceous specimens were brought back, and this fact combined with enormous precipices on the eastern side, leads him to suppose that beds of lava enter very largely into the composition of that peak. The present summit is either a dyke in the wall of the old crater, or else the actual lava plug which has choked up the bottom of it. Consequently the whole of the crater is gone, and that which was the lowest part is now the highest. So that it may be fairly assumed that one or more thousand feet once rose above the present top of Aconcagua.

SEALS IN A LABRADOR LAKE.—Mr. A. P. Low, of the Geological Survey of Canada, in his "Report on a Traverse of the Northern Part of the Labrador Peninsula from Richmond Gulf to Ungava Bay," says that in Seal Lake, fifty miles long and from a half mile to five miles wide, nearly 800 feet above the sea and about 100 miles distant from it, either the common harbor seal (*Phoca vitulina*) or a closely allied species, lives and breeds in considerable numbers, thirty or more being killed annually by the Indians. The seals are thought to have come into this lake during the Champlain submergence, which must have nearly or quite connected it with Hudson Bay; and having found it full of fish, they probably lost the inclination to return to the sea.

Mr. Warren Upham, commenting upon the above in the *American Geologist* (No. 5, 1898), says that this explanation, which is doubtless true, refers to a simple and somewhat uniform epeirogenic uplift less complex and less prolonged than the earth movements which will be found to account for the seals and many species of marine crustaceans in the great Siberian lake Baikal, about 1,500 feet above the sea and having a maximum sounding of 4,746 feet. In both these instances the connection with the sea was geologically recent, in contrast with the probably remote time when Lake Tanganyika, 2,680 feet above the sea and of undetermined depth exceeding 1,200 feet, received its jelly fish and numerous species of mollusks, prawns, and protozoa of marine derivation. Orogenic as well as epeirogenic movements with profound crustal deformation quite certainly shared in separating the basins of these greater fresh-water lakes from the ocean, giving to them a far more complicated history than that of Seal Lake, which merely participated with all the Labrador Peninsula in a general uplift from the late glacial or Champlain depression.

## EUROPE.

THE CANAL FROM THE BALTIC TO THE BLACK SEA.—The digging of the trans-continental canal which is to extend from Riga to Kher-son, Russia, between the Baltic and the Black Sea, began last spring. Starting from Riga the route follows the Dwina River to Dunaburg. From this point the canal will be dug to Lepel upon the Berezina River. It will then follow this stream and the Dnieper to the mouth of the latter river. The route thus utilizes the river courses, and of its total length of 1,600 kilometres only about 200 will be excavated. To enlarge the commercial area to be served by the canal it is proposed to utilize numerous secondary rivers and thus connect the canal with the important towns of Mozyr, Chernigov, Jitomir, Poltava, etc. The canal will be open to vessels day and night. It will take six days for large river vessels to pass through it. Five years will be required to build the canal.

DR. THORODDSEN COMPLETES HIS EXPLORATIONS OF ICELAND.—Dr. Thoroddsen, the well-known explorer of Iceland, writes to the *Geographical Journal* (Nov., 1898), that last summer he completed the geographical and geological researches in Iceland which he began in 1881. He has now examined the entire island. Last summer he investigated the high table lands, northwest of Langjökull in the northwest inland region, examining their physical geography and geology. In the beginning of August he went to the mountain regions behind the valleys of the Borgarfjord, west central coast, where he made some extended excursions.

EXPLORING RUSSIAN LAKES.—Ladoga and Onega lakes, among the largest in Europe, with a total area of nearly 28,000 square kilometres, although in the neighborhood of St. Petersburg, have never been adequately explored. Last summer the Imperial Geographical Society sent an expedition to these lakes to study the temperature of the water at various depths, and ascertain the contour of the bottoms and other peculiarities.—(*Verhandl. of the Ber. Geog. Soc.*, No. 7, 1898).

CAUCASIAN GLACIERS RETREATING.—Prof. Muschketoff records the fact (*Izvestia, Imp. Russ. Geog. Soc.*, No. 4, 1897) that observations at eight glaciers in the Caucasus extending over a period of eight to ten years show that they are steadily receding. The termini of the glaciers are retreating from nine to thirty-eight metres every year.

OPENING A NEW RUSSIAN FOREST DISTRICT.—Mr. Henry Albrow writes to the *Journal* of the Manchester Geographical Society, that the hitherto unavailable forests of the extreme northeast part of Russia in Europe are about to be made accessible, and within a short time the fine redwood trees of those virgin forests bordering on the Arctic circle will be put upon the English and other European markets in the shape of lumber. A commission has been granted to a strong Swedish company with cutting rights to fell about one million trees in the basin of the Petchora River, and arrangements have been made for transportation of the logs down to the mouth of the river and along the coast westward to the port of Oserka on the Murman coast, Kola Peninsula, within a few hours steaming of the Norwegian frontier. The mouth of the Petchora is free from ice and open to navigation for only three months in a year, but it is thought feasible to convey sufficient logs during that time to the saw-mills at Oserka to enable them to cut lumber practically the whole year. Oserka being an ice-free port, the export can be carried on during nine or ten months of the year. The redwood trees on the west slopes of the Ural Mountains in the Petchora basin are of excellent quality and large dimensions. The Petchora is navigable from its source on the western slope of the mountains to its outlet in the Arctic Sea opposite Novaya Zemlya, 700 miles. Navigation, however, is difficult in its delta. The new saw-mills at Oserka will have a sawing capacity of 300,000 logs a year and vessels can load alongside the quays.

## ASIA.

EXPLORING SOUTHERN ARABIA.—One of the unexplored areas of the world is the interior of Southern Arabia. The Vienna Imperial Academy of Sciences (*Globus*, No. 16, 1898), has sent an expedition to explore this region and in particular to examine the extensive ruins in the Hadramut. The expedition will probably last from four to six months. This region was once a very important trade centre and associated with interesting phases of ancient history, and the expedition is expected to attain valuable results from the study of the ruins of the old civilization, as well as from its researches in geographical and geological science. The Academy has the coöperation of King Oscar of Sweden, who assisted it to secure in Stockholm the steamer *Gottfried*, 700 tons, which is equipped with all appliances for such a journey. Count Karl Landsberg, the Swedish Arabist, who long resided on the south Arabian coast and established friendly relations with some of the Sheikhs of

the interior, is the leader of the expedition, assisted by Dr. D. H. Müller, professor of Semitic languages at the University of Vienna. Dr. Alfred Zahn, Prof. Oskar Simony (son of the late Austrian geographer) and Dr. Franz Kossmat, of the Imperial Institute of Geology, a former pupil of Suess and Penck, are other members of the party.

GOLD ON THE COASTS OF THE OKHOTSK SEA.—The Russian Government has received a report from the expedition sent out under Mr. K. T. Bogdanovich to explore the east coast of Siberia from the town of Okhotsk to Chumikan, at the southwest corner of the Okhotsk Sea. Gold was found in paying quantities in a number of the rivers flowing into the Okhotsk Sea, and also on the slopes of the low mountain ranges which run almost parallel with the coast. Alluvial gold was found in several places which resembles that of the Amur territory and particularly that of the Seja basin. The cold climate is an impediment to mining. Midway on the coast is the hamlet of Ayan, whose excellent harbor is free from ice five months in the year.—(*Verhandl. of the Ber. Geog. Soc.*, No. 7, 1898.)

CARAVAN ROUTES IN PERSIA.—Persia, which is about five times as large as Great Britain and Ireland, consists, for the most part, of an elevated plateau, intersected by barren mountain ranges which run east and west and die out near the eastern frontier. There are only a few rivers, and these are small. There is a large area of salt desert. Where there is water the fertility is prodigious. The population is sparse and probably does not exceed 7,000,000 souls. The route to Trebizond, on the Black Sea, is the only land-trade route to the west, and this used to be the main route for traffic to and from Europe till the near approach of the Russian frontier, and the import of Russian goods *via* the Caspian on the one hand, and the Suez Canal on the other, crippled its importance. Still, trade follows this route in spite of its passing through Turkey and the country of the unruly Kurds, and although its outlet on the Black Sea is off the highway of sea-borne traffic.

The average height of the Elburz range on the north is 11,000 to 12,000 feet, and the passes over it vary from 6,500 to 10,000 feet in altitude. It should naturally seem that trade routes would avoid the mountain ranges, which form the retaining walls of the Great Central Plateau on its northern and southern sides, and that they would enter Persia either from the east or west and so escape the main obstacles to a good road. From the east, however, south of

Herat, there has been no land traffic until recently. The Government of India is now encouraging a trade route from Baluchistan to Seistan Province in southeast Persia, and it is said to be proving a great success.

At present, merchandise and travellers are carried by means of either camels, mules, ponies or donkeys. These are formed into caravans. In the case of pack-animals, the load varies with the size and age of the beast. Packages of 200 pounds each, making a total weight of 400 pounds, is about the average camel-load. The camels are tied in long strings, the halter of each being fastened to the tail rope of the one before him. From fifty to sixty walk in a line at a pace of about two miles an hour.—(*Lieut.-Col. Henry Lake Wells in the Journal of the Manchester Geog. Soc.*, Nos. 4-6, 1898.)

#### AFRICA.

CROSSING THE SAHARA IN A BALLOON.—Lieut. Hourst, the explorer of the middle Niger, contemplates crossing the Sahara in a balloon. Starting from the Gulf of Gabes he hopes, with the help of the northeast winds, to cross the waste to the north bend of the Niger. He expects to be accompanied by the aeronautic experts, Léo Dex and Capt. Dides.

#### POLAR REGIONS.

Of the various Arctic and Antarctic expeditions now in the field, very little has been heard.

The failure of the *Windward*, Mr. Peary's ship, to return by December 1st, establishes beyond reasonable doubt the assurance that she will not come south until next summer or fall. As the wintering of the *Windward* in the pack was one of the contingencies provided for, little need be feared for the safety of the ship's company, all of whom are picked men—Newfoundland sealers, accustomed to work in the ice.

While the return of the ship would have brought us definite news concerning the exploring party, her failure to return this fall allows the reasonable and encouraging conjecture that she reached so high a latitude before disembarking Mr. Peary and his party, that she was not able to clear the pack before the ice sealed the channels. Of course every degree of latitude passed by the *Windward* on her northern course means just so many miles of weary tramping saved to the explorers.

The captain of the *Hope*, S. W. Bartlett, a brother of Captain John Bartlett of the *Windward*, says in a recent letter:

"My brother informed me before leaving, that if the ship was all right, and it did not break up (in the ice) that he would abandon on the 20th of August. I hope they got up to Discovery Head. The ice was very heavy, and we had considerable trouble getting out of Port Foulke, but apparently there seemed to be no obstacle in their course to Cape Sabine. I am inclined to think that the season set in early. We found the young ice stiff in crossing Melville Bay on our way back, and the whalers that arrived at Dundee, September 25th, report heavy frost and that they at one time thought they were caught for the winter."

We get from the London *Times*, through its correspondent on board the *Fram*, details of the voyage of Capt. Sverdrup's expedition across the Atlantic, to Godhavn, Greenland, where it arrived July 30th.

Continuous headwinds and stormy weather drove the *Fram* out of her course, and well up under the Faroes and Iceland. From the report it would appear that the ship rolls violently and makes but little way against headwinds.

While off Cape Farewell, on July 19th, the *Fram* ran into the ice and for two days pushed her way between the pans, which were unusually abundant this season in that latitude.

Along the western coast of Greenland the conditions were not at all favorable. The ice kept the *Fram* out of Sukkertoppen, but she succeeded in reaching Egedesminde, where thirty-six dogs were taken aboard. More dogs were to be embarked at Godhavn and Upernavik, whence the course was to be shaped for Cape York.

Meteorological and other observations were commenced early on the voyage, and several enclosed messages had been thrown overboard before reaching the neighborhood of Cape Farewell.

The Scottish Geographical Society issued in October a "Special Antarctic Number." Many distinguished scientists set forth the reasons for believing that a well-equipped expedition to the Antarctic regions would yield most valuable results.

In the same number the acting editor, Mr. W. A. Taylor, presents a most interesting "History of Antarctic Discovery."

Despatches from Hobart, Tasmania, state that the British steamer *Ruahine*, which had arrived there, reported that on November 20th she spoke the steam whaler *Southern Cross*, bearing the Borchgrevink expedition to the Antarctic Continent. All on board were well.

The *Geographical Journal* for November has a letter from Mr. H. C. Russell, the Government astronomer of New South Wales, on the subject of the limitation of the Indian Ocean field of ice-



bergs between  $40^{\circ}$  and  $90^{\circ}$  East Long. and  $40^{\circ}$  and  $50^{\circ}$  South Lat.

He thinks that this limitation is perhaps rather apparent than real; the number of ships passing through that region making the number of *reported* icebergs greater than in tracks to the north or south, where comparatively few vessels pass. Another probable cause is the Antarctic current which sets to the south near Kerguelen. He concludes:

"I think these reports are too condensed. We want the icebergs for each month and each year plotted, each on a separate chart, with currents, winds and weather shown, and then a careful study of the whole would, I feel sure, help us very materially in grasping the whole difficulty of the *iceberg*; and my pet scheme, were the money available, would be to send a party of competent observers in a suitable steamer to go amongst the icebergs in latitudes used for commerce, and study them say for six or eight months."

#### COMMERCIAL GEOGRAPHY AND STATISTICS.

THE COAL PRODUCTION OF THE EARTH IN 1894-96.—The total coal production in 1894 was 554,948,000 tons; 1895, 585,319,000 tons; 1896, 600,105,000 tons. Here are the figures for the three greatest coal-producing countries:

	1894.	1895.	1896.
England.....	191,290,000	192,696,000	198,487,000
United States....	154,887,000	175,185,000	173,000,000
Germany.....	98,806,000	103,958,000	112,438,000

The coal production in the United States in 1897 was 198,257,000 tons. Of this amount Pennsylvania supplied by far the greater portion, 106,000,000 tons, or about 54 per cent. of the whole, 52,000,000 tons being anthracite. The next most important coal-producing States were Illinois, with 20,000,000 tons; West Virginia, 13,500,000 tons, and Ohio, with 12,000 000 tons. Alabama produced 5,900,000, and the smallest amount, 495 tons, was contributed by Nebraska.

THE INCREASE IN THE POPULATION OF EUROPE.—*L'Economiste* has an article on the growth of the population of Europe and its States in the decade 1887-97. The total population of Europe at the end of 1887 was 343 millions, and at the end of 1897, 379.7 millions, an increase of 36.7 millions, or 10.3 per cent. increase for the ten years, or 1.03 per cent. for each year. In 1887, 35 persons, on an average, lived in each square kilometre, and in 1897, 39 persons, or an increase in density in population in ten years of 4 persons to the square kilometre. The most densely peopled coun-

tries are Belgium, 200 to the square kilometre; the Netherlands, 133; Great Britain, 118; Italy, 104; Germany, 87; France, 72, and Switzerland, 71. Russia made the largest increase in the decade, 17.4 per cent., with 103.6 millions inhabitants in her European domain. Russia, however, Norway, Finland and Sweden are the States of lowest density of population.

COFFEE IN THE UNITED STATES.—The United States is the largest buyer of coffee. It consumes one-half of the total production, which is about 1,600,000,000 pounds a year. Since 1890, the importations of coffee into this country have averaged in value about \$90,000,000 a year, two-thirds of which comes from Brazil. Porto Rico and the Hawaiian Islands, however, are very favorably situated for coffee culture, and our new colonies are likely to supply a considerable part of the demand.

THE POPULATION OF JAPAN.—*Le Résumé Statistique de l'Empire du Japon* says the population of that empire is increasing with wonderful rapidity. It has grown from 38,000,000 in 1888 to 42,270,620 in 1895; due wholly to excess of births. The annual death rate is twenty to the thousand.

THE CARAVAN TRADE OF TRIPOLI.—Malta, the distributing point for goods destined to the Mediterranean nations, is reached by steamer from Tripoli in fifteen hours. The coast line of Tripoli measures 1,200 miles and it has many excellent natural harbors. The country, however, is still closed against the introduction of higher civilization. Much of the soil is rich and would yield a variety of valuable crops, but the Government adheres to the policy of excluding foreign enterprise. Tripoli is the chief gateway for traffic with the interior of Africa. The starting points of caravans, Tripoli, Khoms and Benghazi, are 200 miles nearer the Sudan than Oran, Algiers, Philippeville or Tunis. Even the railroads that now connect Oran and Philippeville with Aïn-Sefra and Biskra cannot compete with Tripoli's routes. Through its depots for goods in the interior at Ghadames, Ghat, Murzuk and Aujila and its merchant houses familiar for generations with the demands and tastes of the Sudanese, Tripoli is more closely connected than any other north African territory with Central Africa. Fezzan, Jofra, Aujila, Jalo and Kufra are so many resting places for caravans. The Sudan from and including Baghirmi to the Niger depend upon Tripoli for their imports. The most important routes are those radiating from Ghadames.

The desert tribes afford protection to the caravans in return for regular stipulated payments. The caravan trade is entirely wholesale. Business houses of Tripoli have agents in the markets of the interior. European goods are delivered to these agents on the outward journey, and the produce of the districts is received by the caravans on the return journey. Open markets for the consumer are never held by the caravans in the Sahara and its oases, and very seldom in the Sudan. The retail trade is exclusively in the hands of the agents or dealers in the market towns.

The size of a caravan is from 100 to 1,000 camels. The caravan's arrival is announced a day or two in advance by a man on a riding camel, so that the dealers may have time to collect wares for barter. There are fixed rates for barter, and fresh camels may be hired at the chief centres in the desert. The goods are bought by the payment of cash or more frequently by barter. The goods consist of cotton and woollen cloths chiefly, besides red burnouses, beads, silk, amber, paper, drugs and tea. The chief goods received from the Sudan are ivory, ostrich feathers and hides, with some gold dust, india rubber, indigo, sulphur and medicinal plants.—(Dr. L. H. Grothe, *Deutsche Blätter*, Bd. XXI, Heft 2.)

The report of the British vice-consul on the trade of Tripoli for 1897 says that the estimated value of Sudan products received there in that year was \$460,000.

**THE TIN PLATE INDUSTRY.**—By tin plate is meant a sheet of iron or steel varying in thickness from 22 to 30 wire gauge and coated with tin. The plates to be covered with tin are in several sizes, but the standard is 14 by 20 inches. The tin comes from several sources, of which the best are in Australia and the Straits Settlements. The latter furnish the most desirable tin, known as Banca tin. This is regarded as the purest, and is in consequence more sought after by the manufacturer of tin plate. For twelve centuries the Cornwall mines in England, which were discovered about 55 B. C., were the only source of this mineral. In 1240 tin was found in Bohemia. Five hundred years later, in 1760, the Banca mines were opened. In this century, Australia became a producer of block tin on a large scale. From 1872 tin was found in commercial quantities in New South Wales, Queensland and Tasmania. Tin has been found in several parts of the United States, but in no sense can this country be regarded as a producer of tin. The United States has always been a large consumer of tin plate. In 1892 this country took 60 per cent. of the English pro-

duction of the commodity. In recent years a remarkable falling off in the imports has occurred, owing to the tariff upon imported tin plate, the demand for the article now being largely supplied by American industry.—(*The Yale Review*, No. 3, 1898.)

COMMERCIAL SCHOOLS.—The increased attention that is being given to the study of commercial geography is shown by the text books now preparing in this country, France and Germany, in which special attention is given to the commercial feature. Chicago is to have a commercial high school with a course extending over several years, in which large attention will be paid to commercial geography. The Diet of Japan has this year passed a bill for intermediate commercial schools throughout the empire. Signor Ferdinando Bocconi has placed at the disposal of the Milan Polytechnic \$80,000 for the establishment of an "Istituto superiore di commercio," or Commercial University, to be situated near the Polytechnic. It will aim to train traders of the first rank, and will give a diploma for proficiency in the study of the economic conditions and languages of the leading countries, chemistry, commodities, commercial geography, commercial, industrial and maritime law, customs and railroad legislation, banking, insurance and business methods.